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ROHM AND HAAS COMPANY  
c/o The Dow Chemical Company  
P.O. Box 1967  
2040 Dow Center  
Midland, MI 48641

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RIETH, STEPHEN EDWARD

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* FELIPE AUGUSTO DONATE,  
BRIGITTE ROSE EMELIE, and EVA-MARIA MICHALSKI<sup>1</sup>

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Appeal 2015-007860  
Application 13/166,915  
Technology Center 1700

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Before CATHERINE Q. TIMM, LINDA M. GAUDETTE, and  
BRIAN D. RANGE, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>2</sup>

STATEMENT OF CASE

Pursuant to 35 U.S.C. § 134(a), Appellants appeal from the Examiner's decision to reject claims 3–5. We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> The real party in interest is The Dow Chemical Company.

<sup>2</sup> In explaining our Decision, we cite to the Specification dated June 23, 2011 (Spec.), Advisory Action dated January 28, 2015, the Appeal Brief dated April 7, 2015 (Appeal Br.), the Examiner's Answer dated August 20, 2015 (Ans.), and the Reply Brief dated October 12, 2015 (Reply Br.).

We AFFIRM.

The claims are directed to an aqueous coating composition (*see, e.g.*, claim 3) and a method for providing a coating including a step of forming the aqueous coating of claim 3 or claim 4 (*see, e.g.*, claim 5).

The aqueous coating composition includes a coalescent composition, which is the mixture of two phenyl ethers. The mixture may be either: (1) a mixture of ethylene glycol phenyl ether and diethylene glycol phenyl ether or (2) a mixture of propylene glycol phenyl ether and dipropylene glycol phenyl ether. *See* claim 3. Claim 3, as reproduced from the Claims Appendix of the Appeal Brief, is further illustrative:

3. An aqueous coating composition comprising
  - an aqueous polymeric dispersion having a minimum film formation temperature of from -20 °C to 30 °C and
    - from 0.1 % to 5% by weight, based on the weight of aqueous polymeric dispersion solids, of a coalescent composition comprising
      - from 20 to 80% by weight, based on the weight of said coalescent composition of alkylene glycol phenyl ether and
        - from 80% to 20% by weight, based on the weight of said coalescent composition, of dialkylene glycol phenyl ether;
      - wherein said alkylene is selected from the group consisting of ethylene and propylene and said dialkylene is diethylene when said alkylene is ethylene and said dialkylene is dipropylene when said alkylene is propylene;

wherein said coalescent composition has an initial boiling point of greater than 250 °C measured at a standard pressure of 101.3 kPa.

Appeal Br. 14 (paragraph indents added).

The Examiner maintains the following rejections:<sup>3</sup>

- A. The rejection of claims 3–5 under 35 U.S.C. § 112 ¶ 1 for lack of written descriptive support;
- B. The rejection of claims 3–5 under 35 U.S.C. § 103(a) as obvious over Arpin<sup>4</sup> as evidenced by GuideChem;<sup>5</sup> and
- C. The rejection of claims 3–5 under 35 U.S.C. § 103(a) as obvious over Arpin in view of Lynch<sup>6</sup> as evidenced by GuideChem.

#### OPINION

##### *Rejection A: Written Descriptive Support*

According to the Examiner, claims 3–5 lack written descriptive support under 35 U.S.C. 112 ¶ 1 because the limitation “wherein said coalescent composition has an initial boiling point of greater than 250 °C measured at a standard pressure of 101.3 kPa” includes boiling point values that are not supported by the original Specification. Ans. 2–3. The Examiner’s finding of lack of support rests on underlying findings that “Table 1.1 only has values ranging from 250.4 to 255.7 °C,” and the Specification contains no other mention of initial boiling point, such as some generic statement. Ans. 2–3, 9.

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<sup>3</sup> The Examiner withdrew a rejection under 35 U.S.C. § 103(a) over Tanimoto. Ans. 8.

<sup>4</sup> Arpin, US 4,530,954, issued July 23, 1985.

<sup>5</sup> GuideChem, Chemical Trading Guide, available at <http://www.guidechem.com/reference/dic-380122.html>.

<sup>6</sup> Lynch et al., US 2010/0130645 A1, published May 27, 2010.

We agree with Appellants that the Examiner's finding of lack of support is misplaced. Appeal Br. 6–7.

In many cases where an open ended range is recited in a claim and the specification fails to recite the range, values throughout the range or otherwise indicate that the range is open-ended, the Examiner's analysis would support a finding of lack of written descriptive support, *see, e.g., In re Wertheim*, 541 F.2d 257, 262–63 (CCPA 1976) (finding a step of concentrating a coffee extract to a solids content of at least 35% was not supported by a disclosed step of concentrating to 25 to 60% with examples at 36% and 50%). However, the question is highly dependent on the specific facts of the case and one must take care not to substitute mechanical rules for an analysis grounded on the facts. *Wertheim*, at 263. Ultimately, what the Examiner must establish is that the specification failed to reasonably convey to the ordinary artisan that the inventor had possession of what was claimed as of the filing date. *Wertheim*, at 262.

The facts of the current case differ from those of cases like *Wertheim*. In *Wertheim*, the range at issue was a range of solids concentration in a coffee extract. *Wertheim* had not shown that their original disclosure conveyed possession of the full range of “at least 35%” solids concentrations. But in the present case, it is not the concentrations of the components that are at issue, it is the recitation of “an initial boiling point of greater than 250 °C” in a claim to a composition. Unlike the component concentration of *Wertheim*, the initial boiling point is an inherent property of the coalescent compositions meeting the requirements of the claim. Limiting the initial boiling point to those greater than 250 °C does not have the same effect on the scope of the claim as limiting the concentration of the

components directly by reciting a concentration range in the context of Appellants' claim 3.

Claim 3 requires the coalescent composition comprise a mixture of 20 to 80 wt% of alkylene glycol phenyl ether and 80 to 20 wt% dialkylene glycol phenyl ether, the weight percentages being based on the weight of the coalescent composition. The claim further limits the mixture to two combinations: (1) ethylene glycol phenyl ether (EPH) and diethylene glycol phenyl ether (DiEPH); and (2) propylene glycol phenyl ether (PPH) and dipropylene glycol phenyl ether (DiPPH).

Each of the monoalkylene glycol phenyl ethers and dialkylene glycol phenyl ethers inherently have an initial boiling point. The evidence of record indicates that mixtures of 70/30 EPH/DiEPH and 50/50 EPH/DiEPH have initial boiling points above 250 °C. Spec. 9–10, Table 1.1. The Examiner finds, and Appellants do not dispute, that DiPPH has an initial boiling point of 340.8 °C as evidenced by GuideChem. Ans. 4; Appeal Br. 6–11; Reply Br. 2–7. There is no question that Appellants disclose coalescent compositions comprising EPH/DiEPH and PPH/DiPPH mixtures that would result in initial boiling points greater than 250 °C. Coating compositions containing this coalescent mixture are what Appellants purport to have invented and reciting the initial boiling point range in the claim does not change that fact. The coalescent composition is selected so that it qualifies as a zero-VOC coalescent composition. Spec. 9:23–26. To be a zero-VOC coalescent composition, the composition must have an initial boiling point above 250 °C. *Id.*; *see also* Spec. 1:15–23, 8:18–21. Reciting the zero-VOC requirement in the claim does not change the genus of coalescent compositions beyond what is reasonably conveyed by the original

Specification as possessed by Appellants at the time they filed the application.

We do not sustain the Examiner's rejection of claims 3–5 as lacking written descriptive support under 35 U.S.C. § 112 ¶ 1.

*Rejections B and C: Obviousness*

Turning to the obviousness rejection over Arpin, as evidenced by GuideChem, and the rejection over those references further in view of Lynch, we note that Appellants do not argue any claim apart from the others for either rejection. Appeal Br. 7–11. We select claim 3 as representative to resolve the issue on appeal, which is the same for both rejections.

There is no dispute that Arpin teaches an aqueous coating composition comprising an aqueous polymeric dispersion having a minimum film formation temperature within the range of claim 3 or that Arpin discloses including a coalescent that can be, for instance, propylene glycol phenyl ether or dipropylene glycol phenyl ether. *Compare* Ans. 3, *with* Appeal Br. 7–11. Nor is there any dispute that Arpin fails to exemplify using propylene glycol phenyl ether in mixture with dipropylene glycol phenyl ether or their relative amounts. *Compare* Ans. 3, *with* Appeal Br. 7.

The issue is: Have Appellants identified a reversible error in the Examiner's finding that the prior art suggests forming an aqueous coating composition including from 0.1 to 5 wt%, based on the weight of aqueous polymeric solids, of a coalescent composition, which is a mixture of propylene glycol phenyl ether and dipropylene glycol phenyl ether in the relative amounts of claim 3?

Appellants have not identified such an error.

Arpin's aqueous coating composition (lime dispersion paint) can contain:

coalescence agents, such as the monobutyl ether of ethylene glycol or of diethylene glycol; *the phenyl ether of ethylene glycol, propylene glycol or dipropylene glycol*; or products of the white spirit type having a low content of aromatic compounds to lower, where necessary, the minimum film-forming temperature of the binder, for example, down to a temperature below or equal to 0° C., in an amount ranging from 3 to 4 parts by weight per 100 parts of binder.

Arpin col. 4, ll. 6–14 (emphasis added). As expressed above, the coalescent agent is added to lower the minimum film-forming temperature of the binder. Arpin suggests that any of the listed coalescent agents would function to lower the minimum film-forming temperature of the binder.

As acknowledged by Appellants, Arpin discloses examples, some of which contain combinations of coalescent agents, and some of which contain dipropylene glycol phenyl ether as a single coalescent agent. Appeal Br. 7. Specifically, Arpin discloses examples containing NAPSOL PPH2 (dipropylene glycol phenyl ether) and a white spirit (Example 1), NAPSOL PPH1 (propylene glycol phenyl ether) and a white spirit (Example 2), NAPSOL PPH2 and a white spirit (Example 4), and NAPSOL PPH2 alone (Example 5). Arpin col. 5, ll. 30–33; col. 6, ll. 33–35; col. 7, ll. 33–34; col. 7, l. 64.

Arpin does not expressly suggest combining propylene glycol phenyl ether and dipropylene glycol phenyl ether. Arpin, however, teaches both compounds as performing the same function of lowering the minimum film-forming temperature of the binder. Arpin further teaches the use of other combinations of coalescent agents in the examples. Arpin also teaches an example of using dipropylene glycol phenyl ether alone. Arpin thus



provides evidence that those of ordinary skill in the art would have understood that using any of the coalescent agents alone or in mixture would have achieved the predictable result of lowering the minimum film-forming temperature of the binder when used in amounts obtained through routine experimentation. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007); *see also In re Lindner*, 457 F.2d 506, 507–08 (C.C.P.A. 1972) (upholding the determination that it would have been obvious to combine two old dispersants to obtain expected dispersant properties).<sup>7</sup>

Appellants attempt to distinguish *In re Lindner*, 457 F.2d 506 (CCPA 1972) on the basis that their invention is not directed to the same purpose as Arpin. Appeal Br. 10. This argument fails because Appellants’ coalescent and Arpin’s coalescent are, in fact, for the same purpose: for facilitating film formation of an aqueous coating composition. *Compare* Spec. 3:5–9, *with* Arpin col. 4, ll. 10–14. The similarity in film forming purpose is enough to establish a case of obviousness. *See In re Lintner*, 458 F.2d 1013, 1016 (CCPA 1972) (“The fact that appellant uses sugar for a different purpose does not alter the conclusion that its use in a prior art composition would be prima facie obvious from the purpose disclosed in the

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<sup>7</sup> Although the Examiner withdraws the rationale that “it would have been obvious to combine two coalescent agents described by Arpin since they are taught to be useful for the same purpose” (Ans. 8), we determine this rationale has a sound legal basis in both *KSR* and *Lindner*. The Examiner had cited *Lindner* in support of the rationale in the Advisory Action. Because Appellants had an opportunity to respond to this rationale (Appellants responded at Appeal Br. 10), it was harmless error to withdraw it.

references.”). That Appellants also achieve a non-VOC coalescent property is merely an additional benefit. “As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor.” *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992).

Appellants contend that Arpin teaches coalescent levels of 7.8 to about 9 wt%, based on the polymeric dispersion solids, and provides no suggestion to use the lower levels (i.e., 0.1 to 5 wt%) of their claims. Appeal Br. 9. Appellants do not cite to any portion of Arpin that teaches using 7.8 to about 9 wt%, and the Examiner points out that Arpin discloses using 3 to 4 parts by weight of coalescent per 100 parts by weight of binder. Ans. 12, citing Arpin col. 4, ll. 13–14. The portion of Arpin cited by the Examiner supports the Examiner’s finding. A preponderance of the evidence supports the Examiner’s finding that Arpin would have suggested the use of concentrations within the range of the claim.

Lynch further supports the rejection of the claims. The Examiner finds that Lynch teaches coalescing agents and that the concentration of the coalescent impacts the observed minimum film-formation temperature. Ans. 7. Like Arpin, Lynch supports the Examiner’s finding. Lynch ¶ 4; Arpin col. 4, ll. 6–14. The evidence further supports the Examiner’s determination that the concentration of coalescent relative to binder is a result effective variable that those of ordinary skill in the art would have optimized to produce desired end results. Ans. 7–8. Appellants do not dispute this determination. Appeal Br. 10–11.

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We sustain the Examiner's rejection of claims 3–5 under 35 U.S.C. § 103(a) as obvious over Arpin as evidenced by GuideChem and over Arpin in view of Lynch as evidenced by GuideChem.

#### CONCLUSION

We sustain the Examiner's obviousness rejections, but do not sustain the written descriptive support rejection.

#### DECISION

The Examiner's decision is affirmed.

#### TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED